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Version: Version of Record

Link(s) to article on publisher's website:

<http://dx.doi.org/doi:10.21954/ou.ro.0000e2d9>

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**THE PSYCHOLOGICAL EFFECTS OF ROAD TRAFFIC
ACCIDENTS
ON CHILDREN AND ADOLESCENTS FOLLOWING
ADMISSION TO AN ACCIDENT AND EMERGENCY
DEPARTMENT**

**A thesis submitted in partial fulfillment of the requirement of the
Open University for the degree of Doctor of Clinical Psychology**

September, 2000

**SALOMONS
CANTERBURY CHRIST CHURCH UNIVERSITY COLLEGE**

20,000 Words

Acknowledgements

First, I would like to thank all of the children and parents who participated in this study. Without their help, this research would not have been possible. Secondly, I would like to thank my supervisor Sue Holtum for all her helpful suggestions, constructive comments and for her encouragement. In addition, my thanks go to Geoff Bryant, the Consultant at the Accident and Emergency Department where this research was carried out. I am particularly grateful for the provision of the data base of the children and for his coding of the severity of their injuries. I also want to thank Theresa, Geoff's secretary for the photocopying of the letters and to Jacky in the Accident and Emergency reception for showing me how to use the hospital data base and for retrieving all of the required medical notes for me.

In addition, I would like to thank Jan Burns for her support during the learning sets and for her encouragement throughout the whole process. Important to was my colleagues from Cohort 2 who provided both encouragement and perspective. I also thank David Sperlinger my Tutor, for his support in the reading of the final draft and for giving me hope.

In addition, I would like to thank Bill Yule for his time and because he acted as an inspiration for my work. I would also like to thank Tracy Ribchester, my clinical psychology trainee who was very helpful in checking the scoring of all of the questionnaires. I would also like to thank Ronnie Rosenberg and Rosemary Land for their support of this research and for their encouragement throughout.

Finally, I would like to thank my children, Tammy, Sarah and Sabrina and my friends Norma and Alyson who all had faith in me from the beginning and provided the necessary support and encouragement along the way.

Abstract

Objectives: - The present research attempts to elicit children's perceptions and experiences of enduring a road traffic accident (RTA). It also examined their parents experiences of parenting such children and their own experiences and perceptions of the accident.

Participants: - The study focussed on 14 children, aged from 9 years 9 months–14 years and 4 months of age who had endured a RTA from between 9 – 33 months previously and their parents.

Design: - The study employed a non-experimental design with a combination of quantitative and qualitative paradigms.

Method: - The participants were identified via the hospital data base of all children who had endured a RTA from between 6 – 24 months previously. Both the children and their parents were interviewed on specifically designed semi-structured interview schedules. Each interview was then tape-recorded and transcribed in its entirety. These transcripts then provided the universe of material for subsequent qualitative analysis.

Results:- The results of this study demonstrated that approximately half of the children who had experienced a RTA were suffering from a post traumatic stress disorder (PTSD). In addition, the PTSD case children differed from the non-case children on factors such as awareness of the impending RTA, feelings of self-blame regarding the

accident, and more negative thoughts regarding their experience immediately after the impact and at the time of the assessment. In addition, the parents of the case children displayed similar responses to that of their children.

Conclusion: - A theoretical Model was presented to account for the main findings in response to the research questions, also drawing on existing research. It is emphasised that this model is speculative due to the small sample size insofar as it draws upon the present findings, and as such can only relate to this study sample and further research would be required to fully test and validate it. In addition, recommendations were made for service delivery and clinical practice.

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Declaration of Confidentiality

Every effort has been made to preserve the anonymity of the participants in this present study. Therefore, the names of participants and any information, which could identify them, have been changed.

Dedication

This thesis is dedicated to my father who unfortunately died just before its completion.

Introduction

1.1 Historical Perspective

An historical review of the literature identifies one main strand of importance, which has been influential in the identification, and classification of a Post Traumatic Stress Disorder (PTSD) in children. This came from the work with adults where it was acknowledged that trauma caused severe emotional pain in individuals or groups. Thus, as far back as the 17th century, six months after the Great Fire of London, Pepys reported that “it is strange to think how to this very day I cannot sleep a night without great terrors of the fire: and this very night could not sleep until almost two in the morning through great terrors of the fire” (quoted in Daly, 1983).

In the 20th century, work with adult survivors of the two World Wars and the Vietnam War was also significant in identifying the psychological sequelae associated with trauma and as such became the primary focus of PTSD research. Horowitz and Soloman (1975) coined the term ‘*delayed stress response syndrome*’ to describe the symptoms of veterans who required care from mental health services. Despite this recognition that trauma led to chronic psychological problems the picture was complicated by the use of the term *syndromes* to describe the phenomena. Kardiner (1969) noted the nosological confusion within this area and commented “it is hard to find a province in psychiatry less disciplined than this one. There is practically no continuity to be found anywhere and each author has his own frame of reference”. Despite these criticisms these studies were

at the forefront in identifying PTSD and as such were very influential in the current classification systems (Yule, 1985).

It was not until the last two decades that the effects of trauma in children was given serious consideration (Yule, 1985). In fact, as recently as 1985 it was thought that this age group reacted to trauma with mild and transient emotional and behavioural changes (Garnezy & Rutter, 1985).

1.2 Literature Review

A summary of the literature will be presented starting with the diagnostic criteria for PTSD and covering different theoretical models to account for PTSD, the consequences of trauma for the child, age specific indices of PTSD, the effects of road traffic accidents (RTA's) on children and finally ending with the rationale for the present study and its subsequent choice of methodology.

1.3 Diagnostic Criteria of PTSD and their Application to Children

PTSD is partly defined by an etiological event and partly by the resulting experience following this event and as such, its assessment commences with the identification of an event(s) capable of generating such symptomatology. PTSD was first acknowledged to occur in children in the Diagnostic and Statistical Manual of Mental Disorders (DSM-III) (American Psychiatric Association, 1987). The essential feature of this disorder was "the development of characteristic symptoms following a psychologically distressing event outside the range of usual experience and the stressor producing this syndrome would be

markedly distressing to almost everyone". The characteristic symptoms were said to involve the re-experiencing of the traumatic event (in the form of flashbacks and intrusive thoughts), avoidance of stimuli associated with the event, increased physiological arousal (all three of these symptoms need to be present) and sometimes numbing of general responsiveness.

In the DSM-IV (American Psychiatric Association, 1994), the precipitating event has been clarified and there is a greater emphasis upon the threat to oneself. There is also a specification as to whether the disorder is acute (less than three months) or chronic (more than three months) or whether the onset is delayed (at least six months after the event). In addition, the way in which the symptoms manifest in children are more clearly described. For example, it notes that children's re-experiencing can be expressed as repetitive play, or as nightmares with or without traumatic content. There may also be omen formation – that is, belief in an ability to foresee future untoward events. Children may in addition exhibit various physical symptoms, such as stomachaches and headaches. The International Classification of Mental and Behavioural Disorders (ICD-10) (World Health Organization, 1992) criteria for PTSD are similar to those of the DSM-IV except that greater emphasis is given to re-experiencing phenomena. These symptoms have to last longer than a month and cause clinically measurable distress or impairment in functioning. There is also a distinction between acute traumas as opposed to chronic traumas, or as Terr (1981) differentiates, between Type I and Type II traumas. An acute trauma is defined as a sudden onset of fearfulness, which is often of brief duration and marked by a sudden severe peak of intensity, which is connected to a single event.

Chronic traumas on the other hand, usually imply a gradual or indeterminate onset, moderate to high intensity and long duration and occur in response to repeated stressful situations.

PTSD in both children and adults has been found to be more likely following a sudden, unpredictable, life threatening event (March, 1990). Studies have also acknowledged a dose response relationship whereby the probability and severity of PTSD increases as a function of the magnitude and proximity to the stressor (March, 1990; Pynoos & Eth, 1985; Pynoos & Nader 1988; & Frederick & Pynoos 1988).

In addition, Saigh (1991) asserts that children can develop PTSD through either direct observation (for example by witnessing the death of a sibling), or through verbal transmission of traumatic information (for example being told about the torture of a loved one). Studying 231 children traumatised during the 1982 war in Lebanon, Saigh found that 25.2 percent developed PTSD through direct exposure, 55.6 percent through verbal transmission, and 13.5 percent developed PTSD through combined pathways.

According to Yule (1992a) the view that children only suffered transient adjustment reactions partly explained the paucity of studies on child survivors of major disasters at that time. Some early studies did attempt systematic investigations, but they often used general screening instruments, which were completed by parents or teachers (Earls, Smith, Reich & Young, 1988; Galante & Foa, 1986). It was not until the investigators asked the children themselves that the extent of their private suffering began to be

revealed. For example, Yule and Williams (1990) assessed children who survived the capsizing of the Herald of Free Enterprise passenger ferry nine months after the accident. Just over half (51 percent) of the children were reported by parents to be showing significant disturbance. Although this was not too different from the pathology rate of 60 percent revealed by the children themselves, teachers rated only 25 percent as being disturbed.

In addition, research has focussed upon the severe end of the spectrum (for example, war) or upon discrete classes of events (for example, shootings) which precluded a fuller understanding of the complete range of possible reactions and course of those reactions. There is therefore a need for a more comprehensive appreciation of how children react to traumatic events covering the whole spectrum of events and how those reactions change over time.

1.4 Different Theoretical Models to Account for PTSD

Various theoretical paradigms have been put forward in an attempt to clarify the causal factors involved in PTSD. The most influential theories will be reviewed below. In addition, the research evidence as to the specific variables that are considered important in these models will be examined.

(i) Conditioning Theory

This was one of the earliest paradigms to be applied to PTSD and was based on Mower's (1939) two-factor learning theory. This incorporates both classical/pavlovian and

instrumental/operant conditioning paradigms. The postulation is that the individual is reflexively distressed by the threatening aspects of the traumatic experience (unconditioned stimulus - UCS). Other inherently neutral cues (conditioned stimuli - CS) present at the time of the trauma become classically conditioned as they come to elicit anxiety, even though they themselves represent no inherent danger. Because the subsequent anxiety is aversive, the individual learns that avoidance of trauma-associated cues (both UCS and CS) minimises their distress. Symptoms, such as sleep disturbance, nightmares and startle responses are viewed in this model as involuntary anxiety responses associated with the UCS/CS whereas other symptoms (avoidance, emotional numbing) are seen as instrumentally conditioned avoidance responses.

While the Conditioning Theory, is useful in providing an account of the mechanisms related to fear maintenance, it gives no explanation as to the differences between PTSD and phobias nor does it give any explanations of the wide range of other emotional states and problems that have been found to be associated with PTSD for example intrusive thoughts and flashbacks. In addition, personality variables such as differing attributions, assumptions and secondary emotions such as anger, guilt and blame are ignored.

(ii) Learned Helplessness Model and Attributional Style

This was one of the first cognitive behavioural models, which built upon the principles of operant conditioning to explain the reactions of animals that had been exposed to electric shocks (Seligman, 1975). Learned helplessness was originally offered as a model for depression but more recently has been suggested as analogous to PTSD. With regards to

humans this model states that the degree and type of helplessness experienced by an individual will depend not only on experiencing the uncontrollable event, but also on the way that the individual attributes the cause of uncontrollability (Abramson & Seligman, 1978). Thus, if they attributed the cause of the event on some internal, stable and global factor (for example, I am a stupid person) they would experience more distress. On the other hand if the traumatic event was perceived as external, unstable and specific (I did a stupid thing) the distress would be less. This model and the subsequent Hopelessness Theory (Alloy, Abramson, Metalsky & Hartlage, 1988) allow for the possibility of a specific vulnerability whereby specific attributional styles could put a person at risk for experiencing more severe reactions to trauma.

The Learned Helpless Paradigm provides a useful framework for understanding a wider range of reactions and complements the classical conditioning perspective. Hopelessness along with perceptions of helplessness are common themes in survivors of traumatic events (Joseph, Williams & Yule, 1993). However, the theory does not account for the re-experiencing phenomena, such as intrusive thoughts and flashbacks which are considered as one of the hallmarks of PTSD.

(iii) Emotional Processing Model

Rachman (1980) hypothesised that poor emotional processing creates the specific symptomatology associated with PTSD and considers four factors, which increases the risk of difficulties with this processing of information. (a) state, (b) personality, (c) stimulus and (d) associated activity. When survivors of trauma are highly aroused, and

are tired, they will have greater difficulties in processing the emotions that are aroused by the disaster. Where the event is sudden, intense and dangerous, and involves exposure to fears that are prepared (inherently fearful) then Rachman predicted that difficulties in processing would occur and that PTSD would result.

Despite this models usefulness in understanding both symptoms of PTSD and its acquisition it has one major drawback in that it emphasis's stimulus characteristics rather than issues of appraisal which are considered important factors in subsequent psychopathology and recovery. In addition, Rachman's work is largely descriptive in that there is no explanation as to the mechanisms that are involved in 'emotional processing' or inhibition of emotional processing. There therefore needs to be a theoretical perspective as to the mechanisms that are involved. There is also no specific identification as to the personality variables that would increase or decrease a person's vulnerability to PTSD.

(iv) Information Processing Model

Horowitz (1986) developed an information-processing model, which was based on the idea that individuals have mental models (or schemas) of the world and of themselves, which they use to interpret incoming information. Horowitz's postulation was that there is an inherent drive to make the mental models coherent with the current information (the completion principle). A traumatic experience presents information that is incompatible with existing schemas. This incongruity gives rise to a stress response requiring reappraisal and revision of the schema. During this time, the memory tends to repeat its

representations of the traumatic event causing emotional distress such as intrusive thoughts and flashbacks. A process of inhibition and facilitation occurs alongside this emotional processing which acts as a feedback system modulating the flow of information. If the inhibitory control is not strong enough, intrusive symptoms such as flashbacks and nightmares occur. When the inhibitory effects are strong avoidance occurs. Emotional numbing is seen as a defense mechanism to protect against intrusions.

Horowitz's Model is limited in that it fails to explicitly incorporate psychosocial factors that may influence the severity of symptoms (Jones & Barlow, 1990). It also fails to explain the absence of symptoms in some individuals and gives little attention to the process of appraisal and how the individual interpretations may mediate between the traumatic event and adjustment. In addition, Horowitz places an emphasis upon a 'desire for completion' for which there is little evidence (Chemtob, Roitblat, Hamada, Carlson & Twentyman, 1988).

(v) Social Cognitive Perspective

The work of Janof-Bulman (1985) also focuses on the cognitive schemas that individuals hold. Her central thesis was that posttraumatic stress is largely due to the shattering of basic assumptions about the self and the world. The number and extent of assumptions that are shattered, is to some extent dependent upon the individual involved, but basically there are hypothesised to be three types of assumptions, shared by most people, that can be affected to a lesser or greater extent. The first assumption is the belief of personal invulnerability; the second refers to the perception of the world as meaningful and

comprehensible, and finally, the third relates to a view of oneself in a positive light. Traumatic events call into question each one of these primary postulates of an individual's assumptive world and in so doing destroy the stability within which they function. Janof-Bulman (1985) who focussed mainly on victims of crime states that the coping process following victimisation (trauma) therefore entails the establishment of an assumptive world, which incorporates one's experience as a victim. One aspect of this is the redefinition of the event into something less threatening and another involves a change in behavioural patterns to decrease the risk of future traumatic events.

Janof-Bulman (1985) also examined the role of self-blame and identified two types behavioural and characterological self-blame. She asserts that behavioural self-blame involves blaming one's own actions and is adaptive, whereas characterological self-blame involves blaming attributions to one's enduring personality characteristics and is maladaptive. This assumption fits well with the attributional style research of Abrahamson et al. (1978) which hypothesises that depressive symptomatology is the result of internal, stable and global attributions for negative events.

In relation to this model, it has been difficult to determine whether the specific cognitive styles are due to the effect of the trauma or were there before it. Thus, it is very difficult to make a distinction between onset and maintaining factors.

(vi) Integrative Neuro-developmental Model

Pynoos, Steinberg, Ornitz and Goenjian (1997) propose a model to account for traumatic stress in children, which incorporates a developmental and neuro-biological framework. This model assigns a prominent role to the trauma-related formation of expectations as these are expressed in thought, emotions, behaviour and biology of the child. These authors state that by their very nature and degree of personal impact traumatic events can skew expectations about the world, the safety and security of interpersonal life and the child's sense of personal integrity and as a consequence places the child at risk for further disturbances.

The developmental neurobiology of PTSD which runs alongside this psychological developmental model examines the complex issues in three broad areas, (a) maturation of specific brain structures through progressive incremental changes in growth spurts at particular ages, (b) functional physiological correlates, which parallels development among independent subsystems and (c) associated capacities and emotional regulation of behavioural responses.

Whilst this models attempts to integrate all the important aspects of a traumatic event on the personal, behavioural and biological level there have been few empirical studies to test its predictions. Although the emerging longitudinal studies of PTSD do suggest that many children are knocked off their normal developmental trajectory, these studies are conceived from within differential frameworks and so the findings are difficult to map onto the model (Yule, Perrin & Smith, 1998).

(vii) Integrative Model of Adjustment

Joseph, Williams and Yule (1997) advanced this model in an attempt to account for a wider range of factors in PTSD than had previously been acknowledged. The main components of this model are stimulus, appraisal, personality, activity and emotional state factors. The occurrence of a traumatic event gives rise to cognitive representations of the event stimuli being held in memory. These event cognitions take two forms: information that is not available to consciousness and information which is intentionally retrievable. Event cognitions provide the basis for the re-experiencing phenomenon of PTSD. These in turn are affected by the person's past experiences and personality and are subject to a further cognitive activity – appraisal. Appraisal cognitions also take two forms: automatic thoughts (Beck, 1976) and re-appraisals, automatic thoughts are associated with schematic activation and strong emotional states and reappraisals are conscious thoughts which are influenced by disclosure to others in the social network.

The occurrence of event cognitions and appraisal mechanisms may give rise to strong emotional states which themselves are capable of becoming the subject of appraisal and reappraisal which creates secondary emotional states, for example, depression, guilt and anger. The occurrence of these secondary emotional states may be distressing and lead to attempts at coping, including attempted avoidance of thoughts and avoidance behaviour. An important aspect of coping will be in the seeking of social support from others. Input from others can interact via appraisal mechanisms to affect the individuals meaning, attitude, emotional states, coping and memory states and the meaning they assign to the

event, in a helpful or destructive manner. The strength of this model is that it builds upon the most salient features of the Information Process Model of Horowitz in an attempt to explain the psychosocial factors, which might impede or promote the processing of traumatic information. It further attempts to emphasise the role of appraisal processes as outlined in the social cognitive theory of Janoff-Bulman (1985).

This model was built around work with adults and not children and it implies that established expectations are important, it may not therefore be appropriate to apply this model to very young children who have a more immature cognitive capacity. In addition, there is also an assumption in this model that there is a 'drive for completion' (as in the Emotional Processing Model of Rachman) which has been very difficult to substantiate.

1. 5 Evidence from the Literature

Evidence from the research literature gives support to the view that complex relationships may co-exist between personality and PTSD. A number of factors which have been identified as important in their role of inhibiting or enhancing a posttraumatic reaction are reviewed below. These include subjectivity, attributional style; the role of the family and social support, which appear to help maintain or ameliorate psychopathology in the child. Each one of these variables will be addressed in turn.

1.5a Subjectivity

The way individuals appraise the events in their lives appears to be important in determining subsequent pathology. Thus, research with both children (Williams, 1992)

and adults (Rachman, 1980) suggests that the subjective threat of the event is as important as the objective risk and thus gives support for theoretical models of Abrahamson et al. (1978), Horowitz (1986), Janof-Bulman (1985), Pynoos et al. (1997) and Joseph et al. (1997).

1.5b Attributional Processes

Causal attributions are seen as important in that they reflect not only the situational information with regards to the event but also the person's attributional style (Abrahamson, Seligman & Teasdale, 1978) which in turn affects their reactions. For example, one longitudinal study by Joseph, Brewin, Yule and Williams (1993) explored the relationship between causal attributions made by survivors of the Jupiter cruise ship sinking at the time of the event and PTSD one-year post accident. They found that more internal causal attributions for negative and uncontrollable events during the incident were associated with greater post traumatic symptomatology one year later.

1.5c The Role of the Family

There is a paucity of studies examining the role of the family in maintaining or ameliorating PTSD in children. The work that has been done in this area does suggest that this variable has an important part to play in outcome. For example, Applebaum and Burn (1991) in a prospective study asserted that the recovery environment of the family was a very important factor in determining outcome. They reported that relative high levels of parental distress impacted negatively upon recovery after trauma. Green, Koro, Grace, Vary, Leonard, Glaser and Smithson-Cohen (1991) examined the psychiatric reports of 179 children aged two to fifteen years of age who were exposed to the Buffalo

Creek dam collapse in 1972 and found that parental psychopathology, and an irritable and/or depressed family atmosphere contributed to PTSD in the children. It has also been found that children often try and protect their parents from learning about their reactions to trauma for fear of upsetting them (Yule, Perrin & Smith, 1998). In addition, McFarlane (1990) found that where parents had difficulty processing their own emotional reactions their children had more problems later on.

Although Green et al.'s study provided useful indices for PTSD the design could be criticised for two main reasons. Firstly, the diagnostic criteria for children under eight years of age does not accurately reflect their symptomatology. Secondly, psychiatric reports (used in this study) vary with regards to the information that they provide and may be more subjective in nature than a standardised measure.

A preliminary analysis of consecutive cases assessed in a specialist children's traumatic stress clinic found that where a mother and child were involved in the same RTA, the children were less likely to be badly effected by the trauma (Perrin & Smith, 1998). However, a similar study of RTA survivors reached the opposite conclusion (Ellis, Stores & Mayou, 1998). While these differences may be related to a number of factors, for example referral biases and differences in methodology, the point to note is that to date the interaction between the child's reaction and the role of the family is not well understood. Thus, while the work into the role of families as to mediating or inhibiting recovery after trauma is still in its infancy it appears to be an area which warrants further

investigation. In addition, psychosocial factors such as the role of the family and social support are important variables in the theoretical model of Joseph et al. (1997).

1.5d Social Support

A considerable body of evidence has been accumulated in documenting the stress-buffering effects of social support (Cohen & Wills, 1985) and much research has now appeared showing greater social support to be associated with better outcomes following a number of different traumatic events, for example rape (Burgess & Homstrom, 1974) civilian disasters (Cook & Bickman, 1990) and shipping disasters, (Joseph, Williams & Yule, 1993).

On the basis of the growing evidence for the protective role of social support it is generally agreed that the inclusion of social support variables within models of adaptation to traumatic events is helpful in explaining why some individuals go on to develop severe and chronic PTSD reactions while others do not (Figley, 1986; Flannery, 1996; Jones & Barlow, 1990). Thus, this variable plays an important role in the Integrative Model of Adjustment (Joseph et al. 1997).

1.6 Consequences of Trauma upon the Child

The trauma literature with regards to children has been growing rapidly during the last two decades and PTSD has been reported following a wide variety of stressors including kidnapping (Terr, 1979; 1981); natural disasters (Earls, Smith & Reich, 1988; Lonigan, Shannon, Finch, Daugherty & Saylor, 1991); shipping disasters (Yule & Udwin, 1990;

Yule, 1991); witnessing or being the victim of violent crime (Nader, Pynoos, Fairbanks & Frederick, 1990); physical abuse (Green, 1985); witnessing parental conflict (Black & Newman, 1996; Moffit & Caspi, 1998) and road traffic accidents (Gallo, Barton & Parry-Jones, 1997; Winje & Ulvick, 1998; Stallard & Law, 1993; Stallard, Velleman & Baldwin, 1998).

A reading of this literature suggests that there are common psychological experiences shared by individuals experiencing traumas. Emotional reactions that appear to cross a wide range of events include shock, confusion, helplessness, anxiety, fear and depression (Ellis, Atkeson & Calhoun, 1981; Frank, Turner & Duffy, 1979; Frederick, 1985). There is also evidence to suggest that these reactions differ as to the developmental stage at which they occur, becoming more adult-like and closer to the DSM description of the disorder as the child gets older (Pynoos, Steinberg & Wraith, 1995).

Intrusive images (flashbacks) are thought to be one of the most distressing symptoms of PTSD (Yule, 1998a). These images are noted for their vividness and can be accompanied by any of the senses, smell, motion, sound or touch. These flashbacks can occur any time of the day or night and are particularly disruptive when the child is trying to go to sleep. In an attempt to avoid these symptoms, children try to avoid going to sleep, which leads to increased tiredness, irritability and inability to concentrate. This in turn can lead to emotional and behavioural difficulties.

In addition to flashbacks, children can develop specific phobias with regards to any reminders of the traumatic event. They may also develop new fears or old fears may return (Yule, 1998a). Separation difficulties can also occur and have been noted across all of the developmental stages of childhood and as such can apply to adolescents as well (Yule, 1998a). Many children also experience difficulties with attention and memory and often find that previously acquired skills are lost. They become hypervigilant, constantly awaiting a repetition of the traumatic event. In some children, the traumatic event forces them to reappraise their lives and some develop a sense that the future will not work out for them and hence attempt to live each day as it comes. Others become more sensitive to the distress of others and display a greater tolerance when dealing with people (Yule, 1995).

As well as the emotional and behavioural difficulties, physiological reactions occur which prepare the body to either flee from the dangerous event or to confront it, and as such are essential components for survival (Yule, 1995). Despite their usefulness when related to a specific event, these physiological reactions can become intrusive reactions when there is no evidence of danger. They therefore become very distressing symptoms in their own right and form part of the PTSD picture (Yule, 1995).

Schwarz and Perry (1994) take the biological consequence of trauma further. They propose that trauma during childhood can lead to future disorders by etching “an indelible signature on the individual’s development”. This occurs through the involvement of the central nervous system (CNS). These authors state that the alarm

reaction “initiates a cascade of cellular and molecular processes that alter the brain’s structure and function”. This in turn affects behaviour and the emotions generally as individuals find that they are in a constant state of arousal. This maladaptive physiological state puts the child at risk for the development of other disorders that meet the criteria for both axis I and axis II disorders. Terr (1991), in a similar vein equates childhood trauma to “rheumatic fever” in that it sets in motion any one of a number of different problems, any one of which can result in one of a variety of different disorders depending upon the age of the child and the nature of the trauma.

There is some evidence from studies to support this assumption that trauma can lead to other disorders. For example, Famularo, Kinscherff and Fenton (1991) revealed that 79 percent of children diagnosed with Borderline Personality Disorder (BPD) reported traumatic events. A review of the ICD-10 (1992) suggests that a diagnosis of BPD in children is not appropriate. The symptoms described in this disorder would be more accurately described as a conduct disorder, hence these authors inappropriately used this label. Nevertheless, PTSD symptoms have been mistaken for other disorders. Chronic hyperarousal can often present as motoric hyperactivity and along with intrusive thoughts, can interfere with attention and concentration (Glod & Teicher, 1996). In addition, it is not unusual for children with chronic PTSD to display temper tantrums, school refusal, parental defiance, hostility and even aggression. Although such symptoms may suggest diagnoses of Oppositional Defiant Disorder (ICD-10, 1992) which is characterised by ‘markedly defiant, disobedient, disruptive behaviour that often reflects high levels of irritability, over-sensitivity and extreme avoidance behaviours’.

Likewise repeated traumatising may lead to dissociative features, self-injurious and aggressive behaviours and substance abuse and risk taking behaviours in the older age groups (Goodwin, 1985).

1.7 Age Specific Indices of PTSD

A crucial determinant in children's symptomatology is their developmental stage at the time of the trauma. There is some evidence to suggest that very young children do not suffer from flashbacks or emotional numbing (Terr, 1981). Instead, they display vivid re-enactment of the trauma through play, stories and drawings (Scheeringer & Zeanah, 1995). Hendriks, Black and Kaplan (1993) describe this re-enactment of the traumatic event as a "joyless pursuit which never leads anywhere, there is no resolution and no relief". Thus, "derelict buildings are drawn, masonry tumbles, cars crash, stabbing or strangling may repeat themselves over and over again". Fears of the dark, nightmares and waking through the sleep cycle are also prevalent in young children (Benedek, 1985).

According to Scheeringa and Zeanah (1995) neither the DSM (1980; 1987; 1994) nor the ICD (WHO 1987; 1988; 1992) do justice to the range of reactions shown by very young children and in particular ignores the different manifestations of trauma in this age group. These authors examined the phenomenology reported in published cases of trauma in infants and young children and evolved an alternative set of criteria for diagnosing PTSD although to date, these altered criteria have not been tested against the traditional ones. In contrast, studies of older children and adolescents have largely replicated the findings with the adult population (Yule, 1998a). In conclusion, a review of the research literature

surrounding childhood trauma does not therefore conclude that a child's reaction is a transient event, but rather it can entail a serious psychiatric disorder (PTSD) which can be stable for a number of years or act as a precursor to other disorders.

1.8 The Effects of Road Traffic Accidents on Children

This study focuses on the effects of RTA's on children, their experience of the event and their perceptions of subsequent changes with regards to their personality, behaviour and emotions. RTA's because of their acute nature, are a good source of study if one is trying to determine psychological sequelae as a result of a traumatic event. They are usually discrete episodes and it is possible to determine the level of injury sustained by the use of standardised measures (The Injury Severity Scale, (ISS) Baker O'Neil, Handdon & Long, 1974; Baker & O'Neil 1976), enabling comparisons to be made with regards to similar injuries. In addition, the present study will focus on the nine to fourteen year old age group where more reliable evidence exists as to the effects of the trauma on subsequent psychopathology.

In the United Kingdom approximately 42,000 children each year, under the age of sixteen, attend their local Accident and Emergency Department because of RTA's (Department of Transport, 1995). In the town where the current study was conducted, this figure is approximately ninety-six children a year¹.

Children are particularly vulnerable when it comes to negotiating traffic, their more immature development placing them at risk for being involved in a pedestrian or cycling

accident (Jackson, 1978). Research has also shown that children do not know the basic rules of the road and frequently misinterpret road signs. Sandels (1975) researched forty young children regarding their knowledge of road signs and found they were even confused about the more common signs. For example, the pedestrian crossing sign had a variety of interpretations, including, "people must not walk in the middle of the road". With regards to the children crossing' sign (which shows two children running across the road) the responses included "children have to run across the road as fast as they can so they won't get run over".

One of the first major studies of children's reactions to RTA's was the study by Canterbury, Yule and Glucksman (1993). These researchers compared a group of children who had survived a RTA with a group attending a hospital fracture clinic on a number of measures of psychopathology. They found an emotional impact of a road accident over and above that associated with other accidental injury.

Similar findings were found by Hepinstall in association with the Child Accident Prevention Trust (CAPT) (Hepinstall, 1996). In addition, in this study the parents were asked to comment on their own feelings following the accident and many reported feelings of guilt, anxiety and depression. Some also commented on increased distress in the siblings of the child involved. None of the children or parents had received any psychological help after the RTA and some parents stated that although they were aware of their child's distress they did not know how to access psychological help. The CAPT report (Hepinstall, 1996), therefore emphasised the need for increased awareness among

¹ Personal Communication with the Local Accident and Emergency Department.

parents and professionals of the emotional impact of RTA's on children and families. It also recommended that parents need to be informed of psychological and other services available to assist them and their children.

Stallard and Law (1993) in examining a group of children who had been involved in a bus accident found that as well as significant post traumatic symptomatology, the children also reported being distressed in relation to the way they were treated in hospital and DiGallo, Barton and Parry-Jones (1997) found that many of the children were told by adults that they were lucky and that their condition could have been worse. In addition, many children denied that their own experiences were important although they were able to state that other children experiencing similar accidents would be considerably upset.

Other studies focussing on children have reported higher incidences of PTSD following RTA's, for example, Mirza, Bhadrinath, Goodyer, and Gilmour (1998) found that 45 percent of their sample had PTSD. It is difficult to ascertain why incidence rates vary so much across studies, but according to Yule (1998b) this variability in prevalence estimates may depend upon the age of the child, time since the trauma, the assessment methods used and the version of DSM (or ICD) under which casesness was established. In relation to Mirza et al.'s study it is difficult to ascertain from reading their paper why they obtained a higher incidence of PTSD than other studies although two tentative explanations could be put forward. Firstly, these researchers used a consecutive sample of children attending an Accident and Emergency Department. They therefore had a more complete sample of respondents than other researchers who had been plagued by a

low response rate. Secondly, they used the Frederick's Reaction Index (Frederick & Pynoos, 1988) as opposed to the standardised measures suggested by Yule and Udwin (1990). This instrument could be either more sensitive to psychopathology or could have a lower criterion for caseness. The differing reported incidences of PTSD in the studies discussed could also be due to variables such as gender, IQ and the different methodologies in collecting data. For example, self-report, parents, teachers or observational data. Non-standardisation of such variables would make a difference as to the reported incidence of PTSD between studies.

In contrast, Yule et al.'s studies appear to have been carefully executed utilising a battery of standardised measures. Nevertheless these researchers have had difficulties in obtaining a good response to their studies, hence it is still difficult to ascertain an accurate rate of PTSD in children who have experienced a RTA (Yule, 2000). Although estimates vary, as discussed it is evident that around 25 – 45 percent of children who survive a RTA, without the complication of a head injury, are likely to develop PTSD. In addition, they are also at risk of developing other psychological sequelae, for example specific fears, physiological and cognitive difficulties and fear of dying.

Although exposure to a traumatic event is a necessary etiological factor in the development of PTSD, exposure alone does not appear to be sufficient for this disorder to arise. According to McFarlane (1990) even with the most devastating disasters the incidence of PTSD is rarely greater than 50 percent. The question to be asked therefore is why do some individuals go on to develop PTSD and others do not. In addition if

Garmezy and Rutter's (1985) observations that traumatic events have a transient effect on children and that not all of them react with disabling distress, are re-evaluated, the focus could then be upon resilience rather than pathology and could provide additional information that may lead to a greater understanding as to the most pertinent factors that lead to either adjustment and recovery or psychopathology.

1.9 Summary of Previous Research

During the last two decades many of the studies in the area of traumatology, especially with children, have been groundbreaking in that the children themselves were assessed on standardised measures as opposed to only their parents or teachers. The results of these studies clearly outlined the psychopathology associated with traumatic events. This in turn re-addressed the assumption that the child's reaction to trauma was exclusively a transient one. In addition, chronicity and severity are also a function of other psychological factors for example, a person's appraisal of his or her experiences, the support received from others and the life event experiences before and after a disaster may all exacerbate or inhibit the subsequent psychopathology. In children, family and parental factors seem to play a role, but the mechanism is unclear. In addition, numerous theoretical models have been put forward in an attempt to account for the symptoms associated with PTSD and the subsequent processes involved in their transmission. To date, despite being useful in that they provide a framework in which to conceptualise the issues, they are still lacking in providing a comprehensive understanding of the effects of trauma on children.

1.10 Changes in Outlook

Recovery from trauma is not a single, unitary phenomenon; and it seems that for some individuals, recovery entails or leads to some positive aspects or other psychological benefits, as well as, or instead of pathology (Taylor, Collins, Skokan & Aspinwall, 1989). In response to this, Seligman & Csikszentmihalyi (2000) have called for a science of human strengths and optimal functioning. These authors state that the negative valence of issues is only one side of the story within the context of PTSD. Other researchers also argue that there can be positive psychological reactions following trauma (as well as negative) such as an increased ability to appreciate life and to show more compassion towards others (Collins, Taylor & Skokan, 1990; Taylor, Lichtman & Wood, 1984; Joseph, Williams & Yule, 1993). It therefore seems important to examine both the positive and the negative outcomes in research of this kind if an accurate picture of human reactions to trauma is sought.

1.11 Rationale for the Study

The vast majority of the studies quoted regarding the effects of trauma on children have been quantitative. These methodologies, which assess respondents only on statistical bipolar dimensions (for example internality-externality), can be criticised for missing the richness of an individuals spontaneous and subjective experience and meaning. To date there has not been a qualitative assessment of children's and their parents' experience and reactions to a traumatising event. Terr (1981), in her studies attempted this analysis but was heavily criticised on methodological grounds. Thus, after a thorough review of the research literature attention has been drawn to the need to study complexity of responses

in the survivors. This present study is an attempt to re-address these difficulties. Firstly it follows traditional methods in collecting data on psychopathology, but in addition, the children and their parents were interviewed to determine their views as to the effects that the RTA had had upon them. Standardised tests need to be utilised in order to identify the known phenomenon, for example the symptoms associated with PTSD. In addition, a phenomenological approach is required to redress the balance in order that the experiences of the specific children who were involved in the RTA and their parents are documented in a more comprehensive way. Finally, any adaptive or positive aspects of the RTA experience also need to be acknowledged.

1.12 Choice of Qualitative Methodology

Initially the intention of this study was to use quantitative measures on a large sample with hypothesis testing and to then utilise a small sub-sample for an in-depth study of individual children. Unfortunately, the response rate was too low hence, it was decided that the study should focus on extensive semi-structured interviews with children and their parents from which qualitative analysis could be undertaken. Careful consideration was given to the choice of qualitative methodology to be used in this study and initially an Interpretative Phenomenological Analysis (IPA) (Smith, Jarmon & Osborn, 1999) seemed to be appropriate. However, as this study posed specific questions about the phenomenon and required a more structured interview process¹ than would be usual for an IPA, Thematic Content Analysis was subsequently settled on as the most appropriate method. Like IPA, this technique has its strength in illuminating the subjective personal

¹ A more structured interview approach was required because of the younger ages of the participants.

approaches that individuals bring when trying to make sense of their experiences. However, the procedure is not solely exploratory, and allows for previous theoretical accounts of the phenomenon under study to openly influence the coding of data. Alongside this, new themes can also emerge, providing the opportunity to build on pre-existing knowledge and theory.

In qualitative studies, the approach is built on phenomenology, a philosophical movement which developed in the late nineteenth century. It is a study of a phenomenon, which appears real to the senses regardless of whether its underlying existence is proved real or not (Morris, 1981). With regards to reliability and validity, some would argue that to apply these indicators to qualitative work distracts more than it clarifies (Rubin & Rubin, 1995). Instead, it is advanced that researchers should judge the credibility of qualitative work by its transparency, consistency-coherence and communicability. In short, transparency refers to the extent that the reader is able to see the basic processes of data collection. Consistency refers to the checking out of ideas and responses that appear to be inconsistent, and coherence means that an explanation can be offered for apparent contradictions in the findings. Credibility occurs when the researcher can show that core concepts and themes are reflected across the cases. Communicability refers to how the data are presented to others. Other researchers should understand the text and accept its descriptions because they complement what they and others have seen. In addition, triangulation (Yin, 1994), respondent validation (Smith, et al. 1999), reflexivity and inter-rater reliability (Krippendorff, 1980) are very important in the qualitative analysis of data and these issues will be expanded further in the methods section.

1.13 Research Questions

The research questions set out below were based on an extensive literature review, which identified a number of important areas that required clarification. One quantitative question and nine qualitative questions (four concerning the child's experience and five for parents') were developed for the qualitative part.

1.13a Quantitative Question

- 1 What are the characteristics of the children scoring as PTSD cases and non-cases in the sample in relation to the standardised measures?

1.13b Qualitative Questions - Children

- 1 How do children describe their RTA experience?
- 2 How do children describe their hospital experience?
- 3 How do children describe the effects that the RTA has had upon their self, and relationships?
- 4 How do they imagine another child of the same age would feel if they experienced the same type of RTA?

1.13c Qualitative Questions – Parents

- 1 How do parents describe their child's RTA experience and their responses to it in the immediate aftermath?
- 2 How do parents describe their role in relation to the child in the subsequent months after the RTA?

- 3 How do parents describe communications with their child about the RTA?
- 4 How do parents describe the effect that the RTA has had upon their child from before the RTA and afterwards?
- 5 How do parents describe their relationships with professionals?

In addition to the above questions, each question was explored in relation to whether there were any differences in the way that the case and non-case children and their parents described their experiences.

Method

2.1 Participants

2.1.1 Inclusion Criteria

This study focussed in depth on a group of 14 children, aged from nine years nine months to fourteen years four months who had experienced a RTA from nine to thirty three months previously and who had attended the Accident and Emergency Department at their local hospital. Only children who lived within the Health Authority's catchment area were included. Further details of the participants are given at the start of the Results section.

2.1.2 Exclusion Criteria

The study excluded any child who had experienced unconsciousness for more than fifteen minutes, children who had formal special educational needs and those who were unable to speak English. The exclusion of children who had been unconscious for more than fifteen minutes was aimed at preventing the confounding variables that head injury can bring and is a cut-off point used by other researchers in this area of research (Ehlers, Mayou & Bryant, 1998).

2.2 Design

This study adopted a non-experimental, cross-sectional, retrospective design to address qualitative and descriptive research questions concerning children's perception and experience of enduring a RTA. It also examined parents' experiences of parenting such children and their own experiences and perceptions of the accident. In the original conception of the study, the intention was to involve a large sample of children and to test

hypotheses using inferential statistics; additional data would then have been gathered which would have formed an in-depth qualitative analyses for a smaller sub-sample. However, the low response rate of families meant this was unworkable (see also section 2.9), and therefore the quantitative data were subsequently used in a different way. Following the principles of triangulation (Yin, 1994), the quantitative measures were integrated into the research to add perspective on the qualitative phenomena under study which entailed the collection of the qualitative data via interviews. A further change in approach occurred at this stage, where initially Interpretative Phenomenological Analysis (IPA) (Smith, et al. 1999) was to be utilised. As the study progressed it seemed more appropriate to use Thematic Content Analysis. This decision was made for two main reasons. Firstly there were a number of specific research questions, which were based on previous research and theory, thus it felt more appropriate to utilise this previous knowledge base and seek answers to the questions poised. This is in contrast to IPA where the responses arise from the data as a whole. Secondly, because half the participants in this study were children a more structured interview style was adopted than would normally be the case in IPA.

2.3 Rationale for Data Collection

A review of the trauma literature suggested that there was a need for a mixed methodology. Consistent with this, quantitative measures were used here to objectively measure the relative level of distress across individuals to establish with some reliability and validity the presence of PTSD. There also seemed to be a need to address a wider number of dimensions in order to obtain a more comprehensive picture as to how the

trauma had affected the child and their parents at a more subjective and personal level. Thus, both quantitative and qualitative data were collected to address the research questions in a more comprehensive way. As noted previously, the original plan was to gather data for statistical theory testing. However the poor response rate, meant that the quantitative data could only be used as delineated above, to establish PTSD and to provide an additional source of reliable and valid data for triangulation purposes.

2.4 Permission to Conduct Study

Prior to approval being sought from the relevant Local Research Ethics Committee, permission was obtained with regards to the feasibility of the study from the Child and Adolescent Mental Health Service (CAMHS)¹ and from the Accident and Emergency Department within the Trust. The managers at CAMHS were originally approached and once permission had been granted the Medical Consultant at the Accident and Emergency Department was contacted. This was done initially by writing and then a formal meeting was arranged to organise access to the hospital database and to send out the research request letters to the families concerned. Subsequently, close contact was kept with the Managers at CAMHS and the Consultant at the Accident and Emergency Department.

2.5 Ethical Issues

This study approached potential respondents with care, with the use of appropriately worded contact letters both for the child and parent respondents. In addition, the research adhered to the British Psychological Society's Ethical Principles and Guidelines (1993)

¹ Where the Researcher Worked.

and the Division of Clinical Psychology Professional Practice Guidelines (1995). The research protocol was reviewed by the Local Ethical Committee². Recruitment and consent procedures were developed to ensure:

- (i) The participants (both children and parents) had sufficient information to make an informed choice regarding participation.
- (ii) Support was available should distress arise.
- (iii) Potential participants would not feel pressured to take part.
- (iv) Informed consent was received in writing before accessing medical records and verbal consent was obtained prior to the researcher conducting the interviews.
- (v) Any child that required treatment would be given this opportunity independent of taking part in the study.
- (vi) Participants were informed with regards to their right to withdraw from the study at any time.

Once the parents had provided written agreement for their child to take part in the study the following were adhered to:

- (i) Verbal agreement to take part in the study was obtained from the child.
- (ii) Verbal and written consent was obtained from both the parent and the child to record the interview that comprised Phase II of the study³.

² See Appendix 1 for a copy of the Ethical Clearance Letter.

³ See Appendix 2 for a copy of the audiotape consent form.

- (iii) Children were reassured that the information that they provided would not be passed to their parents as a matter of course. This would only happen if the child consented to it, or the researcher was concerned about the child.
- (iv) All names in the Research were coded to protect the identity of each child and family.
- (v) All audiotapes were erased after the transcripts had been typed.
- (vi) Each audiotape was kept in a locked filing cabinet until they could be transcribed and then no one but the researcher heard the tapes. A debriefing procedure was also incorporated into the interview stage and details of this are outlined in Section 2.12 (iii).

2.6 Accessing Medical Records

Once the consent forms had been received from the families the medical records for each child was examined to obtain the following information:

- (i) Demographic details such as age, date of birth and sex of the child.
- (ii) Age when the accident occurred and time elapsed since the accident.
- (iii) Type of accident, for the purpose of this study the RTA's were divided into three categories, (i) passenger in a motor vehicle, (ii) pedestrian and (iii) cyclist, which reflected the type of accidents that the children were involved in.
- (iv) Type and severity of the injuries sustained.

2.7 Severity of Physical Trauma

The degree of severity of Physical Injuries sustained by the children was assessed using the Injury Severity Scale (ISS) (Baker, O'Neil, Handdon & Long, 1974; Baker & O'Neil, 1976) and was conducted by the Consultant within the Accident and Emergency Department when the medical records were reviewed. The ISS is an instrument of demonstrable reliability and validity (Yates, 1990) the possible values ranging from 1-75, where 1 is minimal and 75 is a lethal injury. The ISS together with the patient's age and mechanism of injury is regarded as an International standard for identifying risks associated with trauma and as such is regarded as a scientific instrument (Oestern & Kabus, 1994).

2.8 Procedures

The participants for this study were identified via the hospital database and letters, which were signed by the Medical Consultant, were sent out from the Accident and Emergency Department inviting the families to participate in the study⁴. A total of 182 children were identified this way, 99 boys (55 percent) and 83 girls (45 percent). Fourteen children were excluded immediately because they did not live in the vicinity, (ten children were from abroad and four from other parts of the country). This sampling procedure resulted in a small sample hence it could be argued that it was unlikely to be representative of the RTA child population as a whole. Nevertheless, the author considered it worthwhile as an exploratory study, which could be used to generate questions for further research. Letters were therefore sent out to 168 families in all. Prior to these letters being sent out, the patient information details on the hospital database were checked to make sure that all

of the children to be included in the study had survived their accident and all met the inclusion criteria.

There were two letters, one for the parent and one for the child. In addition two information pamphlets, Helping Children Overcome Accidents (aimed at the parents) and Getting Over an Accident – Advice for Children Over 8 (or Advice for Young People for the adolescents, which ever was appropriate) were forwarded to the families for their information⁵. These information leaflets were designed by the Child Accident Prevention Trust (1998) and provided information with regards to the possible effects of road traffic accidents and ways in which some of these difficulties could be overcome. Along with this letter there was a consent form for the parent to sign with a telephone number and a named contact person in case they had any queries about the study or if they would like their child to receive professional help⁶.

2.8.2 Means of Arranging Interviews

In all, twenty-one parents responded to the letter and completed the consent forms representing a response rate of 12.5 percent. These families were then telephoned and asked whether they would like to attend their local (CAMHS) or whether they would prefer a home visit in which to complete the interviews. Most parents opted for a home

⁴ See Appendix 3 for the letters of request for the parents' and children to participate in the study.

⁵ See Appendix 4 for a photocopy of these leaflets, unfortunately the shape of the originals prevented them from being included in the appendices.

⁶ See Appendix 5 for a copy of the consent form.

visit for their child. At this point, the families were informed that the researcher would interview both the child and parent(s) separately in order to complete the standardised questionnaires and that a second interview was required in order to conduct a semi-structured interview schedule. It was possible to arrange appointments for nineteen families; two families were lost because they were not at home when the researcher called. The recruitment yield in diagramatic form can be found in Appendix 6.

2.8.3 Process of Interview Phase I

The interview Schedule and Framework comprised:

- An introduction to the study, parent and child together
- Repeat the nature and extent of confidentiality, anonymity and clarify consent
- Explanation of the interview process and the use of the questionnaires
- Completion of the standardised questionnaires – Child alone
- Debriefing (a) with Child and (b) with Parent and Child together
- Answering any questions or queries that either the Child or Parent may have.

2.8.4 Measures used for Data Collection

2.8.5 Rationale for the Assessment of PTSD Predictors

The work of Yule and Udwin (1991) has been a major development in the area of trauma research. They reported a screening battery consisting of the following measures, all of which have high predictive value in determining the presence of syptomatology associated with PTSD in children⁷. Each one of these measures was used in the present study.

1 *The Revised Children's Impact of Events Scale* (Horowitz, Wilner & Alvarez, 1979).

This measure is designed to identify the three most salient features of PTSD, namely

intrusion, avoidance and arousal. The measure has been used extensively with children (Yule & Udwin, 1990; Stallard & Law, 1999). A Revised 13 item version was used for this study (Dyregrov & Yule, 1995) which has been found to have high validity and reliability (Stallard & Law, 1999). A score of ≥ 17 on the 8 items relating to intrusion and avoidance has been found to be an efficient cut off for PTSD (Dyregrov & Yule, 1995). Using this cut off the scale works efficiently at discriminating cases, mis-classifying only 10 percent. Each item is presented in question form and is answered on a four point-scale (Not at all, Rarely, Sometimes or Often), scored 0, 1, 3, and 5 with no reversed items. The total score thus ranges from 0 to 65.

- 2 *Birleson Childhood Depression Scale*, (Birleson, 1981), This scale comprises 18 items, scored on a 3 point scale (Most = 0, Sometimes = 1, and Never = 2), with eight items reversed for scoring. Good internal consistency has been reported (Birleson, 1981), and a cut-off score of 15 has been found to be six times more likely to be associated with a diagnosis of depression and provides acceptable specificity and sensitivity. The scale has been used with children aged seven to eighteen years of age and normative data on 250 school children aged eleven to fifteen has been reported (Firth & Chaplin, 1989; Yule, 1992).
- 3 *Revised Children's Manifest Anxiety Scale (RCMAS)* (Reynolds & Richmond, 1978). The RCMAS is designed to measure generalised nonspecific anxiety in children. The scale comprises 37 true/false items: 28 anxiety items and 9 social conformity scale

⁷ These measures can be found in Appendix 7.

items. Items have good face validity and the scale has shown good internal consistency (James, Reynolds & Dunbar, 1994). A cut off of 11 is required for clinical 'caseness'. Concurrent validity indicators are good, with a correlation of .85 with the A-Trait scale of the State Trait Anxiety Inventory for Children (Spielberger, Gorsuch, Lushene, Vagg & Jacobs, 1973). The RCMAS was chosen over the latter because of its more frequent use in trauma studies with children and because it is easy to administer.

2.8.6 Measures used in Identifying Personality Variables

In addition to the above measures, the present researcher used the following measures in order to address variables of particular interest about the child's personality:

- 1 *Children's Attributional Style Questionnaire – Revised (CASQ-R)*⁸, (Kaslow and Thompson, 1998). This measure is designed to assess a child's causal attributions for positive and negative events. More specifically, it can identify specific versus global, internal versus external and stable versus unstable attributions for life events, which are seen as important in subsequent pathology. Studies have shown that the CASQ-R has moderate internal consistency reliability and fair test-retest reliability ($r = .53$, $p < .001$ for the overall composite score, $r = .53$ $p < .001$ for the positive composite score and $r = .38$ $p < .001$ for the negative composite score), and it has also demonstrated criterion-related validity with self-reported depressive symptoms (Thompson & Kaslow 1998).

⁸ See Appendix 6 for a copy of the e-mail from Nadine Kaslow giving permission for this measure to be used in this research.

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- 2 *The Child's Assumptive World Scale*, (Bishop, Dagleish & Yule, in press). This is a recently developed scale, which provides a means of measuring the assumptions that children make about their world. The scale consists of a positive assumptions and a negative assumptions sub-scale. Currently data are only available for samples of non-traumatised children, although the researchers are in the process of applying the scale to traumatised children to determine whether it differentiates those who go on to develop PTSD and those that do not.

All the above scales can be self-administered by the child, but in this instance they were administered by the researcher to avoid any discrepancies that may arise as a result of the different reading abilities of the children within the study.

2.9 Analysis of Quantitative Data

The analysis of the quantitative data was conducted using the Statistical Package for Social Sciences Personal Computer Version (SPSS/PC). When the plan was to conduct inferential statistics with a sizeable sample, a power analysis was calculated in order to determine the sample size that would yield sufficient statistical power to detect a given size of effect. Using Pearson's correlation it would be possible utilising just over 80 respondents to detect correlations as low as $r = 0.3$ with 80 percent power (assuming a significance level of 0.05). This size of correlation is considered to be a medium effect size (Clarke-Carter, 1997). The corresponding sample size to detect a small effect ($r = 0.1$) with the same power (80%) would have been 800 participants, and to detect a large effect ($r = 0.5$), also with 80% power, would have been 30 participants. It was known

that approximately 96 children pass through the local Accident and Emergency Department every year (total 188 children over two years), so in order to detect down to the medium effect there had to be a response rate of approximately 40 percent, (because 80 participants would be required in total). Unfortunately, the response rate for this study was only 12.5 percent⁹; therefore, quantitative analyses were unlikely to be very informative, due to the lack of statistical power. Thus in this study, it was decided that the data loaded onto SPSS would be used for descriptive purposes only.

2.10 Qualitative Procedures

Of the nineteen children who were originally included in the study, sixteen children and sixteen parents were originally interviewed for the qualitative part. One child was excluded because he had suffered severe head injuries and thus did not meet the criteria for inclusion in the study. A further child acted as a pilot to the study so was not included in the main body of the data. Thus, the more detailed qualitative analyses were conducted with fourteen children and their parents (seven PTSD cases and seven non-PTSD cases) and comprised two semi-structured interviews, one interview devised specifically for the children and the other for the parents¹⁰. Each interview was tape recorded in order to get a more accurate account of the interview data and was later transcribed in its entirety.

2.11 Piloting of the Semi-Structured Interview Schedule

The interview schedule was piloted on one family (mother and child) and only minor adjustments were required before it was used in gathering the main body of data. For

⁹ There was a 12.5% response rate but two children were lost to the study leaving an actual figure of 11.3%.

example, some of the questions were re-ordered to allow for a more natural progression of topics. The researcher devised the semi-structured interview after an intensive literature review and informed by clinical practice within this area. The aim of this particular interview was to allow the respondent's to talk openly and in detail about their RTA experience. As such each question was worded very carefully and care was taken to avoid leading questions and to be jargon free. Thus as far as possible open-ended questions were used, but an attempt was made to cover important aspects of the respondents RTA experience. The interview was designed to address the research questions and to last approximately thirty minutes for the child and forty minutes in duration for the parent.

2.12 Details of the Children's Semi-structured Interview Schedule

An overview of the format for this part of the study is presented below:

- Pre-interview Briefing
- Elicitation of the child's RTA Experience
- Child's experience with health service professionals
- Child's view of how another child would have reacted
- Perceived changes in emotion, behaviour and relationships over time
- Communication with significant others
- Debriefing.

The semi-structured child interview was designed with the view that some of the children would have been traumatised by their accident. It therefore comprised a three-stage process:

- (i) Opening: Reminder about the research and to clarify any questions that the child may have.

¹⁰ See Appendix 9 and 10 for a copy of the child and parent interview schedules.

- (ii) Trauma Reconstruction: the child was given the opportunity to express the impact of the trauma in response to a number of open-ended questions, which elicited their RTA experience. The central aim was to try to elicit both the feelings and perceptions associated with the RTA, and to identify what events were incorporated into the child's descriptions of their experiences. Of particular interest was how the event impacted upon their sense of self and how they made sense of their experiences. In addition, attempts were made to elicit their perceptions of the effect that the RTA had on their relationships with significant others and with the health professionals.

A supportive stance was taken when exploring this area with the child. The interview needed to act as a holding environment in order to provide a safe and protective setting so that the child could talk through their experience while at the same time work at mastering any increased anxiety that they may be experiencing. Thus, it was essential that the researcher was sensitive to both the child's physical and emotional state and that breaks were provided if required. Throughout the interview stage, it was important to comfort the child if they became distressed and to help them remember their own coping strategies.

- (iii) Closure: this was a very sensitive process of terminating the interview and comprised a debriefing process which assisted the child in addressing his or her concerns in order to enable them to re-address the traumatic incident in a more positive way. Debriefing occurred according to clinical judgement and depended upon the responses of the child. There was also an attempt to

normalise the child's experiences in the light of their trauma and there was an emphasis upon how understandable and universal their reactions are.

The interview in addition to eliciting details regarding the RTA the child's courage and bravery was acknowledged both in answering the questions and in agreeing to take part in the study.

- (iv) Leave taking, after each interview there was an expression of respect for the child with regards to the sharing of their experiences and there was an emphasis upon the researcher's availability if required in the future. The child was also asked to comment on the process of being interviewed and given the opportunity to add any further comments or ask any questions about the research.

2.13 Details of the Parents' Semi-structured Interview Schedule

Once the child had been interviewed, the parent or parents were interviewed on the specifically developed Semi-structured Parent Interview Schedule. This schedule was developed by the present author in an attempt to delineate the parents experience of coping with their child after their RTA. It also replicated some of the questions from the standardised child questionnaires to determine whether the parents were able to identify their child's reported symptomatology. For example, "Does you child ever complain of thoughts about the accident that s/he does not want to have"? "Does your child ever complain of bad dreams or nightmares about the accident"? (to elicit intrusive thoughts), and "Does s/he try to avoid situations that remind her or him of the accident"? (to elicit avoidance). A further function of this part of the interview was to elicit the parents own

experiences of the RTA, how they responded to their children and what their relationship with the helping professionals was like. Finally, the parents' emotional state during the interview was recorded. This was done by writing down any obvious distress during the interview and how their child's RTA experience was described.

A summary of areas covered in the semi-structured interview with the parents' is detailed below:

- Pre-interview briefing
- Description of their child's RTA experience and their responses to it
- Description of their role in relation to their child
- Description with regards to communication with their child
- Description with regards to parents' experiences of the helping professionals
- Emotional reactions of parent noted by researcher
- Social Demographic details documented
- De-briefing and information giving.

2.14 Analysis of the Data

2.14.1 Determining Caseness

Based on the results on the standardised measures of PTSD the children were allocated to either a case or non-case group for PTSD. The RIES (Horowitz, 1979) was the deciding factor as to whether a child reached the clinical cut-off point to be regarded as a PTSD case or not. In this study a cut-off score of ≥ 17 on the intrusion and avoidance subscales was used to define whether a child was a PTSD case or not. This is the normal cut-off score for caseness (Horowitz et al., 1979).

2.15 Methodology for the Thematic Content Analysis

Both the children and parents' interviews were tape-recorded and then transcribed in their entirety. This transcription then formed the basis for the qualitative analysis. After initially considering IPA, (Smith et al. 1999) as mentioned earlier, Thematic Content Analysis (Krippendorff, 1980) was chosen as the most appropriate qualitative method for analyses. The study followed the recommendations of Krippendorff (1980) which states that Content Analysis should be viewed as a process of theory development and hypothesis testing with the interview transcripts - in this case from the parent and child interviews - forming the universe of material. As such, it comprised both a mechanical and an interpretative component. The mechanical component involved the physical organisation of the data into basic codes. The interpretative component involved determining which basic codes were meaningful in terms of the research questions. Both manifest and latent basic codes were utilised (corresponding to low and high inference items respectively). In addition, it was important that these categories were exhaustive and mutually exclusive. The categories were operationalised; for example, an explicit specification was made of what indications to look for when making the categorisation. Thus each transcript was read a number of times and any emergent codes were documented. Once the transcripts were coded, they were re-examined to see if the basic codes could be meaningfully grouped together into categories. This process was repeated for all 28 transcripts (14 child and 14 parents). To facilitate this a word processor file of each transcript was searched on the computer screen and segments relating to each theme were pasted onto a new composite file. A coding frame was then generated which was developed around the specific research questions and included all instances of basic

codes that could be assigned to a specific category. The inter-relationships between the categories were then explored to provide further meaningful information about the participants' experiences and perceptions. This part involved a sustained interaction with the text; thus, the aim was to provide a more holistic perspective on the data. This final stage involved the translation of the analytic themes into a narrative account. This allowed for the expression of both the shared experiences of the groups and of the unique experiences of the individual. The coding was tested on a sample of text until it was felt that the scheme was workable, and at this point tests of reliability were made between the researcher and another independent psychologist.

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